

What is claimed is:

1. A method of cleaving a recombinantly expressed protein bound to an intein-chitin binding domain (CBD) and ligating said cleaved recombinant protein to a peptide containing an N-terminal cysteine having an unoxidized sulfhydryl side chain said method comprising contacting said bound recombinant protein with said peptide in a reaction solution containing a conjugated thiol, thereby effecting, in a one-pot reaction, cleavage of said recombinant protein from said intein-CBD and production of a C-terminal thioester of the recombinant protein which spontaneously undergoes intramolecular rearrangement to form an amide bond linking said protein to said peptide.
2. The method according to claim 1, wherein the conjugated thiol is selected from the group consisting of thiophenol, 2-nitrothiophenol, 2-thiobenzoic acid, 2-thiopyridine, 4-thio-2pyridine carboxylic acid and 4-thio-2-nitropyridine.
3. The method according to claim 1, wherein the conjugated thiol is thiophenol.
4. The method according to claim 1, wherein reaction is conducted at about pH 7.
5. The method according to claim 3, wherein reaction is conducted at about pH 7.

6. The method according to claim 1, wherein the reaction is conducted in a buffered solution.
7. The method according to claim 3, wherein the reaction is conducted in a buffered solution.
8. The method according to claim 1, wherein the recombinantly expressed protein is generated in a prokaryotic host.
9. The method according to claim 1, wherein the recombinantly expressed protein is generated in a eukaryotic host.
10. The method according to claim 1, wherein the recombinantly expressed protein is expressed by pCYB expression plasmids.
11. The method according to claim 3, wherein the recombinantly expressed protein is expressed by pCYB expression plasmids.